

RESPONSE TO RESTRICTION REQUIREMENT
U.S. Appln. No. 10/505,153 (Q82789)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claim 1. (Currently Amended) A polynucleotide sequence which is a polynucleotide sequence for a target gene comprising an isolated or purified single stranded polynucleotide sequence comprising continuous components (I) + (II) + (III),

-wherein

-the polynucleotide sequence for the target gene has an RNA function suppression activity in relation to RNA having a sequence complementary to either the component (I) or (III) or a partial sequence thereof,

wherein, the component (III) comprises a continuous polynucleotide sequence of 15 to 30 nucleotides in length that has a polynucleotide sequence complementary to that of the target gene,

wherein the component (II) is a bond or a nucleotide sequence or non nucleotide sequence with a base length of from 10 nucleotidebase to 10 kilobases in length (where, 0 base means a bond), and

the component (I) is a polynucleotide sequence comprising a polynucleotide sequence complementary to the polynucleotide sequence of component (III).

Claim 2. (Currently Amended) The polynucleotide sequence according to claim 1, wherein the polynucleotide sequence of the component (III) comprises DNA or RNA.

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Claim 3. (Currently Amended) The polynucleotide sequence according to claim 1, wherein the component (I) or (III) further has comprises a sequence comprising from 1 to several U, T, G, C, or A bases on at least one terminal, or has such deleted, substituted or added withininside of the complementary sequence.

Claim 4. (Currently Amended) The polynucleotide sequence according to claim 1, wherein the polynucleotide sequence is obtained by chemical synthesis or gene recombination technology.

Claim 5. (Currently Amended) A polynucleotide sequence for a target gene comprising a single stranded RNA having the sequence of SEQ ID No. 1 or 2.

Claim 6. (Cancelled).

Claim 7. (Currently Amended) The polynucleotide sequence according to claim 61, wherein the nucleotide sequence of the component (II) comprises is from a nucleotide sequence of 1 nucleotide base to or more and less than 10 kilobases in length.

Claim 8. (Currently Amended) The polynucleotide sequence according to claim 7, wherein the nucleotide sequence of the component (II) is comprises a nucleotide sequence of a length of from 1 base to several hundred bases nucleotides in length.

Claim 9. (Currently Amended) The polynucleotide sequence according to claim 8, wherein the nucleotide sequence of the component (II) is comprises a nucleotide sequence of a length of from 1 base to several dozen bases nucleotides in length.

Claim 10. (Currently Amended) The polynucleotide sequence according to claim 9, wherein the nucleotide sequence of the component (II) is comprises a nucleotide sequence of a length of from 1 base to 20 bases nucleotides in length.

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Claim 11. (Currently Amended) The polynucleotide sequence according to claim 10, wherein the component (II) has the sequence of is indicated by SEQ ID No. 3 or 4.

Claim 12. (Currently Amended) The polynucleotide sequence according to claim 1, wherein the nucleotide sequence or non-nucleotide sequence of the component (II) comprises PNA, a cytoplasm translocation sequence, a sequence having a decoy activity, an interferon induction suppressing sequence, a sequence having any of RNase suppression activity, antisense activity, ribozyme activity, or transfer RNA, or a combination thereof of these.

Claim 13. (Currently Amended) A method for manufacturing the polynucleotide sequence of any of claims 1 to 12, comprising by chemical synthesis chemically synthesizing said polynucleotide or preparing said polynucleotide by gene recombination technology.

Claim 14. (Currently Amended) A recombinant vector wherein comprising the polynucleotide sequence for a target gene of any of claims 1 to 12 is inserted in a vector.

Claim 15. (Currently Amended) A method of manufacturing the recombinant vector of claim 14, comprising inserting wherein the polynucleotide sequence for a target gene of any of claims 1 to 12 is inserted in into a vector.

Claim 16. (Withdrawn and Currently Amended) A method for screening pharmaceutical product target genes using the polynucleotide sequence for a target gene of any of claims 1 to 12, which is a screening method for assaying compounds to stimulate or suppress functions related to a target gene by comprising:

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- (A) introducing an isolated or purified single strand stranded polynucleotide sequence comprising continuous components (I) + (II) + (III) of claim 1 into cells or tissues, and
- (B) using a single strand said single-stranded polynucleotide sequence to increase or decrease the RNA function suppression activity of a gene genes having a sequence complementary to the polynucleotide sequences of either of the component (I) or (III); wherein the method for screening pharmaceutical product target genes employs any one a method selected from the following methods:
- (a) using labeling directly or indirectly bonded to a candidate compound to measure the binding of the candidate compound and a polypeptide of an amino acid sequence that is coded by the target gene, or a target gene expression product (or a cell or membrane thereof that carries the polypeptide of an amino acid sequence that is coded by the target gene, or a target gene expression product), or a fusion protein thereof;
- (b) measuring in the presence of a labeled competition substance the binding of a candidate compound and a cell into which the single strand polypeptide

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sequence has been introduced (or cells or the membrane thereof carrying the single strand polypeptide sequence), or a fusion substance thereof;

- (c) using a detection system applied to a cell or cell membrane carrying a polypeptide of an amino acid sequence that is coded by the target gene or an expression product of the target gene to determine whether or not a candidate compound has a signal produced by suppressing or activating the polypeptide or expression product of the target gene based on the single strand polynucleotide sequence;
- (d) preparing a mixture by simultaneously mixing a candidate substance and a solution containing an amino acid sequence that is coded by the target gene or an expression product of the target gene, measuring the activity of the polypeptide or the expression product of the target gene in the mixture, and comparing the activity of the mixture with that of a standard; and
- (e) detecting the effect in the cell that the candidate compound has on the mRNA that codes the polypeptide of the amino

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acid sequence that is coded by the target gene, and on the product of the polypeptide of the amino acid sequence coded by the target gene.

Claim 17. (Currently Amended) A pharmaceutical composition ~~taking comprising the polynucleotide sequence for a target gene according to any of claims 1 to 12, and a pharmaceutically acceptable carrier as the active ingredient.~~

Claim 18. (Currently Amended) A pharmaceutical composition ~~taking comprising the recombinant vector of claim 14, and a pharmaceutically acceptable carrier as the active ingredient.~~

Claim 19. (Withdrawn and Currently Amended) A method ~~for suppressing the function of a target gene or method for suppressing the activity of a transcript of a target gene comprising for introducing an isolated or purified single strand stranded polynucleotide sequence comprising continuous components (I) + (II) + (III) into cells or tissues, and to suppress suppressing the function of a target gene based on an RNA function suppression activity of a gene having a sequence complementary to the polynucleotide sequence of either of the component (I) or (III),~~

~~wherein the component (III) comprises a continuous polynucleotide sequence of 15 to 30 nucleotides that has a polynucleotide sequence complementary to that of the target gene,~~

~~wherein the component (II) is bond or a nucleotide sequence or non-nucleotide sequence with a base length of from 0 base 1 nucleotide to 10 kilobases in length (where, 0 base means a bond), and~~

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wherein the component (I) is a polynucleotide sequence comprising a sequence complementary to the polynucleotide sequence of component (III).

Claim 20. (Withdrawn and Currently Amended) The method according to claim 19, wherein the nucleotide sequence ~~comprising polynucleotides of~~ the component (III) comprises DNA or RNA.

Claim 21. (Withdrawn and Currently Amended) The method according to claim 19, wherein the component (I) or (III) is DNA or RNA ~~that has a sequence comprising from 1 to several of U, T, G, C, or A bases on any terminal, or has such deleted, substituted or added insidewithin the sequence.~~

Claim 22. (Withdrawn and Currently Amended) The method according to claim 19, wherein the polynucleotide sequence is obtained by chemical synthesis or gene recombination technology.

Claim 23. (Withdrawn and Currently Amended) The method according to claim 19, wherein the single stranded polynucleotide sequence comprises a single stranded RNA having the sequence of SEQ ID No. 1 or 2.

Claim 24. (Withdrawn and Currently Amended) The method according to claim 19, wherein the component (II) is a bond or nucleotide sequence ~~or a non nucleotide sequence, or a combination thereof.~~

Claim 25. (Withdrawn and Currently Amended) The method according to claim 24, wherein the nucleotide sequence of the component (II) comprises a nucleotide sequence of from 1 nucleotide base or more and less than to 10 kilobases in length.

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Claim 26. (Withdrawn and Currently Amended) The method according to claim 25, wherein ~~the nucleotide sequence of the component (II) comprises a nucleotide sequence of a length of from 1 base to several hundred bases nucleotides in length.~~

Claim 27. (Withdrawn and Currently Amended) The method according to claim 26, wherein ~~the nucleotide sequence of the component (II) comprises a nucleotide sequence of a length of from 1 base to several dozen bases nucleotides in length.~~

Claim 28. (Withdrawn and Currently Amended) The method according to claim 27, wherein ~~the nucleotide sequence of the component (II) comprises a nucleotide sequence of a length of from 1 base to 20 bases nucleotides in length.~~

Claim 29. (Withdrawn and currently amended) The method according to claim 28, wherein ~~the component (II) has the sequence of is indicated in SEQ ID No. 3 or 4.~~

Claim 30. (Withdrawn and Currently Amended) The method according to claim 1819, wherein ~~the nucleotide sequence or non-nucleotide sequence of the component (II) comprises PNA, a cytoplasm translocation sequence, a sequence having a decoy activity, an interferon induction suppressing sequence, a sequence having any of RNase suppression activity, antisense activity, ribozyme activity, or transfer RNA, or a combination of these thereof.~~

Claims 31-35. (Cancelled).

Claim 36. (Withdrawn and Currently Amended) A method for testing the function of a target gene by comprising introducing an isolated or purified single strand-stranded polynucleotide sequence—comprising continuous components (I) + (II) + (III) into cells, tissues, non-human animals, or plants to have an RNA

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function-suppression activity of a gene having a sequence complementary to the polynucleotide sequence of either of the component (I) or (II),

~~wherein, the component (III) comprises a continuous polynucleotide sequence of 15 to 30 oligonucleotide in length that has a polynucleotide sequence complementary to that of the target gene,~~

~~the wherein component (II) is a bond or nucleotide sequence or non nucleotide sequence with a base length of from 1 nucleotide from 0 base to 10 kilobases (where, 0 base means a bond in length), and~~

~~the wherein component (I) is a polynucleotide sequence comprising a polynucleotide sequence complementary to the polynucleotide sequence of the component (III).~~

Claim 37. (Withdrawn and Currently amended) A method for detecting a candidate compound to reinforce the function of a target gene comprising the steps of:

culturing cells, tissues, non-human animals, or plants in the presence of a test compound; thereafter

~~introducing an isolated or purified single strand stranded polynucleotide sequence comprising continuous components (I) + (II) + (III) into said cells, tissues, non-human animals, or plants after culturing the test compound together with the cells, tissues, non human animals, or plants; and~~

~~-comparing to a control the RNA function suppression activity of the RNA of a gene having a sequence complementary to the polynucleotide sequence of either of the component (I) or (III), to a control,~~

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wherein, the component (III) comprises a continuous polynucleotide sequence of 15 to 30 nucleotides that has a sequence complementary to that of the target gene,

wherein the component (II) is a bond or nucleotide sequence or non-nucleotide sequence with a base length of from 0 bases 1 nucleotide to 10 kilobases in length (where, 0 bases means a bond), and

wherein the component (I) is a polynucleotide sequence comprising a polynucleotide sequence complementary to the sequence of component (III).

Claim 38. (currently amended) A polynucleotide sequence for a target gene according to any of claims 1 to 4, wherein the component (III) comprises any type of 1 to 5 ribonucleotides continuing at the 18 to 25 ribonucleotides complementary to the target gene, and the component (I) comprises 18 to 25 ribonucleotides complementary to the 18 to 25 nucleotides of the component (III).

Claim 39. (Withdrawn and Currently Amended) A method for synthesizing nucleotides for target genes including the following steps:

(i) preparing a single strand stranded polynucleotide comprising component (I) and (II) such that several nucleotides ~~ef-at~~ at the 3' terminal of component (II) are complementary to several nucleotides of component (I) or (II);

(ii) synthesizing component (III) based on nucleotide synthesis enzyme activity using ~~this said~~ single strand stranded polynucleotide comprising components (I) and (II), or introducing ~~this said~~ single strand stranded polynucleotide comprising components (I) and (II) into a cell and synthesizing

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component (III) ~~based on the using~~ nucleotide synthesis enzyme activity present inside the cell.

Claim 40. (Currently Amended) A ~~nucleotide—polynucleotide~~ for a randomized target gene obtained by the method of claim 39, wherein ~~the~~ components (I) and (III) are random oligonucleotides.